

Appln No. 09/775,315
Amdt date November 29, 2005
Reply to Office action of June 29, 2005

REMARKS/ARGUMENTS

In the Office action dated June 29, 2005, the examiner rejected claim 10 under 35 U.S.C. § 103(a) as allegedly obvious over Mayer (U.S. Patent No. 5,783,333). However, claim 10 recites adding a binder to the mixture of oxides and heat-treating the mixture to form the positive active material. In contrast, Mayer discloses the use of a binder only in the formation of the positive *electrode*, and does not use any binder in the formation of the positive *active material*. Use of the binder in the formation of the positive active material produces unexpected and desirable results, as described in the Declaration under 37 CFR 1.132 of Hyun-Sook Jung submitted with this amendment. As noted in that Declaration and in the specification at page 11, lines 1-25, the positive active materials according to Comparative Examples 1 through 3 are prepared without a binder and are not subjected to heat treatment. Examples 1 through 3 described in the specification at page 9, line 21 to page 10, line 25, however, are prepared by adding a binder to the mixture of oxides and heat-treating the resulting mixture. As described in the Declaration of Hyun-Sook Jung, the positive active materials according to Examples 1 through 3 exhibit unexpected and desirable results compared to the positive active materials prepared according to Comparative Examples 1 through 3. In particular, the discharge capacities and mid-discharge voltages of cells containing positive active materials according to the invention are superior to those of cells with positive active materials produced without a binder and without heat treatment. Accordingly, claim 10, which recites the addition of a binder to the mixture of oxides and heat-treatment of the resulting mixture to form a positive active material, is allowable over Mayer.

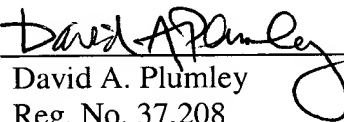
In addition, the examiner maintained the rejection of claims 1-4 under 35 U.S.C. § 103(a) as allegedly obvious over Pynenburg, et al. (U.S. Patent No. 5,429,890) in view of Hasegawa, et al. (U.S. Patent No. 5,370,948). In maintaining this rejection, the examiner asserts that Pynenburg "at least suggests that the relative proportions of the mixed oxide components are indeed result-effective" and that Pynenburg "teaches that the total cell capacity is proportional to the area under the curve for each of the cathode oxide active materials." (April 20, 2005

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Advisory action, page 2). However, Pynenburg does not correlate an increase in cell capacity with the weight ratio of the lithium manganese oxides to the other lithium metal oxides. In fact, Pynenburg only reports the cell voltage and cell capacity of active materials having a 1:1 ratio of the two oxides. (See Column 8, lines 25-46). In contrast, independent claim 1 recites a weight ratio of lithium manganese oxides to lithium nickel manganese oxides of less than 1:1. Positive active materials having a weight ratio of lithium manganese oxides to lithium nickel manganese oxides of less than 1:1 exhibit unexpected and desirable results, as described in the Rule 132 Declaration of Hyun-Sook Jung. Hasegawa also fails to teach or suggest a weight ratio of the two oxides of less than 1:1. Accordingly, claims 1-4 are allowable over Pynenburg and Hasegawa.

Claims 1-4 and 10 remain pending in this application. Applicant has amended claim 10 to more clearly define the claim terms. In light of the above amendments and remarks, applicant submits that all of pending claims 1-4 and 10 are in condition for allowance. Applicant therefore respectfully requests a timely indication of allowance. However, if there are any remaining issues that can best be addressed by telephone, applicant asks the examiner to contact applicant's counsel and the number below.

Respectfully submitted,
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